IN THE CLAIMS

1(original). A control for use with a glass forming machine which includes a blank station for forming a parison from a gob of molten glass having a number of mechanisms, a blow station for forming a parison into a bottle, having a number of mechanisms, a feeder system including a shear mechanism for delivering a gob to the blank station, a mechanism for transferring a parison from the blank station to the blow station and a takeout mechanism for removing a bottle from the blank station,

wherein the machine has a set machine cycle,

wherein each of the mechanisms is cycled within the time of one machine cycle,

wherein the duration of each displacement of each of the mechanisms is determinable,

wherein interferences exist between the motion paths of the gob, the parison, the bottle and individual mechanisms,

wherein at least one displacement of at least one of the mechanisms is divided up into at least two submotions which locates an interferrence with the gob, the parison, the bottle or another mechanism,

wherein the thermal forming of the parison and bottle involve a number of thermal forming processes occuring during the time of one machine cycle and having finite durations, and

wherein process air is supplied for at least one process for a finite duration by turning a supply valve "on" and then "off" during the time of one machine cycle,

wherein each start of displacement and the turning of a supply valve "on" and then "off" are controlled events which are started in a selected sequence, and

wherein an unwrapped bottle forming process wherein a gob of molten glass is sheared from a runner of molten glass, the gob is then formed into a parison in the blank station, the parison is then formed into a bottle in the blow station, and the bottle is removed from the blow station, takes more than the time of one machine cycle, comprising

a computerized model of a mathematical representation of a network constraint diagram of the unwrapped bottle forming process, and

computer analysis means for analyzing the computerized model as a constrained optimization problem for determining, with inputs including the following:

1. the motion durations,
2. the submotion durations, and
3. the machine cycle time,
4. the event time in an unwrapped bottle forming process for each displacement to begin and for each valve to be turned "on" and "off", and
5. thermal forming process duration "N",

an optimized machine cycle time for a feasible schedule and the event times in this schedule for each event to begin and for each valve to be turned "on" and "off".

2(original). A control for use with a glass forming machine according to claim 1, further comprising input means for defining

1. the motion durations,
2. the submotion durations, and
3. the machine cycle time,
4. the event time in an unwrapped bottle forming process for each displacement to begin and for each valve to be turned "on" and "off", and
5. thermal forming process duration "N".

3(original). A control for use with a glass forming machine according to claim 1, further comprising wrapping means for wrapping the event times in an unwrapped bottle forming process for each displacement to begin and for each valve to be turned "on" and "off" into event angles in a machine cycle for each displacement to begin and for each valve to be turned "on" and "off".

4(original). A control for use with a glass forming machine according to claim 2, wherein said input means comprises an operator terminal.

5(original). A control for use with a glass forming machine which includes a blank station for forming a parison from a gob of molten glass having a number of mechanisms, a blow station for forming a parison into a bottle, having a number of mechanisms, a feeder system including a shear mechanism for delivering a gob to the blank station, a mechanism for transferring a parison from the blank station to the blow station and a takeout mechanism for removing a bottle from the blank station,

wherein the machine has a set machine cycle,

wherein each of the mechanisms is cycled within the time of one machine cycle,

wherein the duration of each displacement of each of the mechanisms is determinable,

wherein interferences exist between the motion paths of the gob, the parison, the bottle and individual mechanisms,

wherein at least one displacement of at least one of the mechanisms is divided up into at least two submotions which locates an interferrence with the gob, the parison, the bottle or another mechanism,

wherein the thermal forming of the parison and bottle involve a number of thermal forming processes occuring during the time of one machine cycle and having finite durations, and

wherein process air is supplied for at least one process for

a finite duration by turning a supply valve "on" and then "off" during the time of one machine cycle,

wherein each start of displacement and the turning of a supply valve "on" and then "off" are controlled events which are started in a selected sequence, and

wherein an unwrapped bottle forming process wherein a gob of molten glass is sheared from a runner of molten glass, the gob is then formed into a parison in the blank station, the parison is then formed into a bottle in the blow station, and the bottle is removed from the blow station, takes more than the time of one machine cycle, comprising

a computerized model of a mathematical representation of a network constraint diagram of the unwrapped bottle forming process, and

computer analysis means for analyzing the computerized model as a constrained optimization problem for determining, with inputs including the following:

1. the motion durations,
2. the submotion durations, and
3. the machine cycle time, and
4. thermal forming process durations,

an optimized machine cycle time for a feasible schedule and the event times in this schedule for each event to begin and for each valve to be turned "on" and "off".

6(currently amended). A control for use with a glass forming machine according to claim 1, further comprising input means for defining

1. the motion durations,
2. the submotion durations, and
3. the machine cycle time, and
5. thermal forming process durations τ .

7(original). A control for use with a glass forming machine according to claim 5, further comprising wrapping means for wrapping the event times in an unwrapped bottle forming process for each displacement to begin and for each valve to be turned "on" and "off" into event angles in a machine cycle for each displacement to begin and for each valve to be turned "on" and "off".

8(original). A control for use with a glass forming machine according to claim 6, wherein said input means comprises an operator terminal.

9(new). A control for use with a glass forming machine which includes a blank station for forming a parison from a gob of molten glass having a number of mechanisms, a blow station for forming a parison into a bottle, having a number of mechanisms, a feeder system including a shear mechanism for delivering a gob to the blank station, a mechanism for transferring a parison from the blank station to the blow station and a takeout mechanism for removing a bottle from the blank station,

wherein the machine has a set machine cycle,

wherein each of the mechanisms is cycled within the time of one machine cycle,

wherein the duration of each displacement of each of the mechanisms is determinable,

wherein interferences exist between the motion paths of the gob, the parison, the bottle and individual mechanisms,

wherein at least one displacement of at least one of the mechanisms is divided up into at least two submotions which locates an interferrence with the gob, the parison, the bottle or another mechanism,

wherein the thermal forming of the parison and bottle involve a number of thermal forming processes occuring during the time of one machine cycle and having finite durations, and

wherein process air is supplied for at least one process for

a finite duration by turning a supply valve "on" and then "off" during the time of one machine cycle,

wherein each start of displacement and the turning of a supply valve "on" and then "off" are controlled events which are started in a selected sequence, and

wherein an unwrapped bottle forming process wherein a gob of molten glass is sheared from a runner of molten glass, the gob is then formed into a parison in the blank station, the parison is then formed into a bottle in the blow station, and the bottle is removed from the blow station, takes more than the time of one machine cycle, comprising

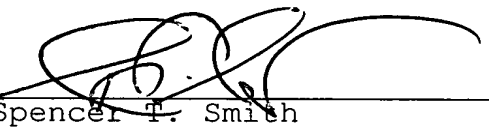
a computerized model of a mathematical representation of a network constraint diagram of the unwrapped bottle forming process, and

computer analysis means for analyzing the computerized model as a constrained optimization problem for determining, with inputs including the following:

1. the motion durations,
2. the submotion durations, and
3. the machine cycle time, and
4. the event time in an unwrapped bottle forming process for each displacement to begin and for each valve to be turned "on" and "off",

an optimized machine cycle time for a feasible schedule and the event times in this schedule for each event to begin and for each valve to be turned "on" and "off".

Respectfully submitted,

By 
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